

SMALL PHOTOVOLTAIC SYSTEM FIELD EXPERIMENT (5 kW<sub>e</sub>)

I. OBJECTIVES

The objectives of this Project are fourfold:

- To evaluate the performance of a flat-plate solar photovoltaic conversion system providing a nominal electric peak output of 5kW;
  - To compare its performance with that of the systems of Solar Project "A" under very similar climatic conditions;
  - To evaluate the performance of the components included in the system;
- and
- To assess the impact on the social and economic conditions of the local user(s) of the system.

II. WORK SCOPE, SCHEDULE, AND MILESTONES

To accomplish these objectives, a three-year collaborative Project will be undertaken by the Department of Energy of the United States of America (DOE), by the Ministry of Industry, Commerce and Handicraft of Italy (MOI), and by the Ente Nazionale per l'Energia Elettrica of Italy (ENEL) (hereinafter referred to as the Parties), with an optional follow-on period for performance monitoring purposes of an additional three years, in which case this Annex will be extended in writing. ENEL has been designated by MOI to perform certain responsibilities as set forth terms and conditions of a Party to the Memorandum of Understanding Between the Government of the United States and the Government of the Italian Republic Concerning Energy Cooperation signed 17 October 1979 and the Addendum signed 4 June 1980.

The photovoltaic system will be constructed and operated in Italy in an experimental installation with the following characteristics:

- The site will be a remote rural household or community which is neither connected to a utility grid nor provided with a central electric power source. The site will be located close to that of Project "A".

— The experimental system will comprise five kilowatts of peak D.C. electric generating capacity from flat-plate photovoltaic arrays; D.C./A.C. electric inversion; a minimum amount of battery storage to provide for the electric load requirements; and power conditioning, instrumentation, and controls.

— The electricity uses will include, but not be limited to, irrigation water pumping, lighting and refrigeration.

The Project will be broken down into five (5) phases as follows:

Phase 1 -- Site selection.

Phase 2 -- Conceptual design and preparation of draft and final Request for Proposal.

Phase 3 -- Procurement period and contract award.

Phase 4 (a) -- Detail design, component qualification, and system fabrication.

Phase 4 (b) -- System installation, and acceptance by Operating Agent.

Phase 5 -- Operation, evaluation, and maintenance of system.

Milestones for the Project are set forth in Table D-1.

Table D-1

Milestones for Project "D"

(Milestone)	(Date)
(1) Approval of Completed RFP	July 1980
(2) Issue of Approved RFP by Operating Agent (ENEL)	September 1980
(3) Selection of Contractor(s)	November 1980
(4) Approval of Contract Award	December 1980

(5) Approval of Detail Design(s)	March, 1981
(6) Installation Complete and Checked Out	June, 1982
(7) Installation Performance Review	October, 1982
(8) Final Report	December, 1982

### III. MANAGEMENT AND REPORTING REQUIREMENTS

A. The Executive Committee and the Project Committee for this Annex will implement this Project in accordance with the Addendum to the Memorandum of Understanding signed 4 June 1980.

B. The Project will be managed and implemented by ENEL as the Operating Agent on a day-to-day basis as set forth in paragraph II above and in accordance with the Addendum signed 4 June 1980.

### IV. FUNDING

The total estimated cost of the project is \$525,000. The yearly budget breakdown is as follows: 1980 - \$75,000; 1981 - \$375,000; 1982 - \$75,000.

ENEL will expend approximately \$315,000 in Italy. DOE will expend approximately \$55,000 in the United States in accordance with its normal procedures, and DOE will transfer approximately \$155,000 to the Operating Agent. Detailed procedures and schedule for transferring funds by DOE to the Operating Agent will be agreed upon in writing prior to the time of the initial transfer.

The Operating Agent will maintain financial records for all expenses.

The Operating Agent will annually, using the United States fiscal year, provide a certification to DOE of the amount of all funds utilized; such certification will be transmitted by the Operating Agent to DOE within three months following the end of each fiscal year and bearing a certification common to the Operating Agent.

V. INCORPORATION BY REFERENCE

Paragraphs 4 and 5 of the Memorandum of Understanding Between the Government of the United States and the Government of the Italian Republic Concerning Energy Cooperation signed 17 October 1979 and Articles 3, 5, and 9 of Annex I thereto and the Addendum to the Memorandum of Understanding signed June 4, 1980, are hereby incorporated by reference.

VI. INFORMATION AND INTELLECTUAL PROPERTY

(a) Subject only to the restrictions applying to patents and copyrights, the Parties will have the right to publish all information developed prior to or outside the Project and provided to the Project, except proprietary information, and all information arising from this Project. For the purposes of this paragraph, proprietary information will mean information which contains trade secrets or commercial or financial information which is privileged or confidential, and may only include such information which:

- a) has been held in confidence by its owners;

- b) is of a type which is customarily held in confidence by its owner;
- c) has not been transmitted by the transmitting Party to other entities (including the receiving Party) except on the basis that it be held in confidence; and
- d) is not otherwise available to the receiving Party from another source without restriction on its further dissemination.

(b) It will be the responsibility of the Party providing information pursuant to paragraph (a) to the Project to identify information it furnishes which qualifies as proprietary information under paragraph (a) and ensure it is appropriately marked. The Parties will take all necessary measures in accordance with this paragraph, the laws of their respective countries and international law to protect proprietary information.

(c) Information developed prior to or outside the Project owned or controlled by the Party which is necessary for or utilized in the Project and information arising in the course of or under the Project ("arising information") will be freely available to both Parties for use and dissemination.

(d) Proprietary information developed prior to or outside the Project and inventions made or conceived prior to or outside the Project owned or controlled by third parties will be utilized in the Project only if such information or inventions will be licensed on reasonable terms and conditions to the Parties, their Governments, and their nationals designated by them. If such licensing rights can not be obtained, such inventions or information shall not be accepted for or utilized in the Project without the express unanimous approval of the Parties as set forth in an agreement between the Parties stating the terms and conditions for such acceptance.

(e) Reports containing arising information and information developed prior to or outside the Project necessary for and used in the Project, including proprietary information, will be provided to the Parties by the Operating Agent and will cover the work performed by the Operating Agent under this Project.

(f) Inventions made or conceived in the course of or under this Project ("arising inventions") will be owned by ENEL in Italy and third countries and by DOE in the United States. Each Party will license such arising inventions to the other Party, its Government and its nationals designated by it royalty-free.

(g) The Operating Agent or either Party may take appropriate measures necessary to protect copyrightable material generated by it under this Project. Copyrights obtained will be the property of the Party or the Operating Agent, for the benefit of the Parties; provided, however, that both Parties may reproduce and distribute such material, but will not publish it with a view to profit.

(h) Each Party will, without prejudice to any rights of inventors or authors under its national laws, take all necessary steps to provide the cooperation from its authors and inventors required to carry out the provisions of paragraph VI. Each Party will assume the responsibility to pay awards or compensation required to be paid to its employees according to the laws of its country.

Ente Nazionale per l'Energia  
Elettrica of Italy